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REGIONAL DIFFERENTIATION OF HUMAN POTENTIAL INDICATORS¹

The purpose of the study presented in this article is an interregional analysis of human potential. The quality of the population proper is investigated at the regional level far less than the quality of the population life. The article provides an extended characteristic of human potential in seven directions: economic activity, demographic processes, physical health, the cultural potential of population, social health, educational potential, the attitude of population to the environment. On the basis of official statistics for 2008–2012, there were selected 63 indicators characterizing human potential in all these directions. In the final result, the correlation analysis has led to the substantiation of the system of indicators for the level of human potential development, consisting of 10 indicators. The system included 3 economic indicators and 7 social indicators characterizing human potential. Upon these indicators the Russian regions were divided in two types of regions by means of hierarchic agglomerative (combining) methods of cluster analysis: the regions with economic indicators and without them. The performed calculations provided the typology of regions by the human potential indicators being stable over time and covering 74.4 % of the Russian population. A substantial interpretation of breaking down regions by groups, identification of both strong and weak aspects of each cluster were made, finding out specific features of the regions falling under the clusters. The obtained results can be used when working out measures for reducing the interregional inequality in the levels of human potential development. To find out what measures can be effective, it is possible to examine the strategic directions of regions' development in the cluster that is the most successful with respect to the human potential characteristics under investigation.

Keywords: human potential, quality of population, human resources, cluster analysis, regional level, typology of regions, economic indicators, social indicators, Federal subjects, interregional analysis

Introduction

We consider the concept of population quality (together with its quantitative characteristics) to be the most close to the concept of human potential [1, 2]. Besides, if human resources are taken in conjunction with the qualitative indicators of these resources, this concept can be also regarded as a synonym of human potential. In turn, the difference in using the concepts of human potential and human resources from the concept of population quality is that the first two are usually considered in a conjunction with economic development, and population quality is a multi-aspect notion.

“The fate of any society depends first of all on the characteristics of its members,” as rightly wrote P. Sorokin in 1922. “The society consisting of idiots or mediocre people will never be a prosperous society. The society consisting of talented and strong-willed persons will inevitably create even more perfect forms of community... Careful examination of the rise and fall of the whole peoples shows that one of the main causes of this was a dramatic qualitative change in the composition of their population in this or that way” [5].

Hence, the necessity for making an extensive characteristic of human potential, population quality.

The work on conceptual coordination of the approaches to comprehension of the qualitative substance and quantitative characteristic of human potential resulted in a conclusion about the expediency of shaping an extended characteristic of human potential by the following 7 directions: economic activity, demographic processes, physical health, cultural potential, social health, educational potential, attitude of population to environment. On the one hand, in terms of economy, these directions are more numerous than those included in the characteristic of human potential. On the other hand, in terms of development of society, there are many other characteristics of human potential and quality of population, for example, such as mentality, psychological specific features, etc.

The role of no small importance in identifying the directions of analysis of human potential was played by the factor of information base of the conducted study. This factor was also taken into account

¹ Original Russian Text © V. V. Lokosov, Ye. V. Ryumina, V. V. Ulyanov, 2016, published in *Ekonomika regiona* [Economy of Region]. — 2015. — №4. — 185–196.

when selecting the indicators characterizing human potential in each direction. It should be admitted that here we proceeded not from our theoretical vision of the indicators desirable for characteristic of human potential, but from the real opportunities for carrying out quantitative analysis.

Information base and research methods

Examination of the official statistical handbooks resulted in selecting from 4 to 12 indicators for each direction characterizing the quality of population in Federal subjects:

Economic activities: GRP per one employed (labor productivity), thousand rubles per capita; share of GVA of minerals extraction in GDP, %; rate of population economic activity, %; employment rate (average annual number of gainfully employed/ number of economically active population); number of issued patents (sum of inventions and utility models) per 1000 of the employed; innovative activity of organizations, %; volume of innovative goods, works, services, % of the total volume of shipped goods, performed works, provided services.

Demographic processes: birth rate; death rate; natural decrease/increase of population; life expectancy; net migration rate; share of population under working age; share of population over working age; share of women aged 15–49; marriage-divorce ratio; share of urban population in total population size.

Physical health: morbidity per 1000 population, morbidity by main classes of diseases per 1000 population, number of people with disabilities per 10000 population; number of children in children's recreational institutions per 1000 population under working age.

Culture: number of spectators per 1000 population; number of visits to museums per 1000 population; number of library users per 1000 population; number of issued newspapers per 1000 population.

Social health: rate of registered crimes; rate of persons having committed crimes; rate of crimes committed by minors or with their participation; rate of homicides and attempted homicides (serious crime); rate of deaths from external causes; suicide rate; rate of alcohol addicts; consumption of liters of absolute alcohol per capita; rate of drug addicts; rate of people with mental disorders.

Education: general school enrollment per 10000 population, number; turned out skilled manual and office workers with primary vocational training per 10000 population, number; graduated specialists with secondary vocational training per 10000 population, number; graduated specialists with higher professional education per 10000 population, number; completed postgraduate studies with passed Ph.D. defense per 10000 population, number; researchers with academic degrees per 10000 population, number; share of the employed population having no complete secondary (general) education, %; share of the employed population with complete secondary (general) education, %; share of the employed population with primary vocational training, %; share of the employed population with secondary vocational training, %; share of the employed population with higher professional education, %.

Population attitude to environment: number of air samples exceeding the ambient standards, as % of the total number of examined samples; number of water samples exceeding the ambient standards, as % of the total number of examined samples; share of GVA of extracting industries in GDP, %; industrial consumption of water per GRP, m³/thousand ruble; domestic consumption of fresh water per capita, m³/year; number of registered ecological crimes per 100 thousand population; current expenditures on environment protection, as % of GRP; investment in environment protection, as % of GRP; number of newly diagnosed diseases of the respiratory system per 1000 population.

The information was collected by 83 regions for the period of 2008–2012. The main data source was the handbook issued by Rosstat², as well as statistical books from different ministries and agencies.

As an example, we give our argumentation of selecting indicators for work with the economic block. These indicators should characterize the quality of population in the economic aspect, and hence—reflect the population ability for labor activity. It should be emphasized here that we choose characteristics of the quality of human potential (quality of population), but not the quality of life.

The performance of economic activity is shown by labor productivity that is quantitatively expresses by GRP per one employed. GRP can be also regarded as both the indicator of the quality of life (income) and the indicator characterizing human potential, its creative abilities. In the first case, there is usually taken GRP per capita, and in the second—GRP per one employed.

² Regiony Rossii. Sotsialno-ekonomicheskie pokazateli. 2013: stat. sb. [Russian Regions. Socio-Economic Indicators 2013. Statistical handbook]. (2013). Moscow: Rosstat, 990.

But with respect to human potential, i.e. abilities of population [4–6], indicator GRP is far from reflecting the population ability for labor proper, since it includes natural resource rent, i.e. ‘unearned’ income. In view of this, a higher value of GRP per one employed does not always signify higher labor productivity. It would be fairer to use here green GRP that is less than the traditional one by the value of rental income and damage from environmental disturbances. It is just green GRP that shows the creative ability of population [7–10].

In view of the fact that the prospects for calculating green GRP for all Federal subjects are not clear, the share of GVA of minerals extraction in GRP was included into the economic block as the second indicator for characterizing the quality of population. The higher this indicator, the larger the share of rental income, that tells us about the ability to consume natural resources, but not about the creative ability of population.

The next indicator—level of economic activity of population: ratio of economically active population to total population. In terms of the population ability for labor, we can also regard employment rate (ratio of the average annual number of the employed in the economy to the total number of the economically active population) as a significant indicator [11]. This indicator may be treated in two ways: firstly, as the state of labor market, as the opportunity for population to find jobs, i.e. as the characteristic of quality of life, secondly, as the population striving for labor activity. The latter is particularly important for youth in big cities with high living standards, where the ever growing number of young people having the opportunity to get a job, prefer not to work at all.

The economic block should also reflect the population ability for innovation activity that characterizes to some extent the quality of labor. Statistical handbooks accentuate three indicators in this matter: number of issued patents per 1000 employed in the economy; innovative activity of organizations; volume of innovative goods, works, services, as % of the total volume of shipped goods, performed works, provided services. So, 7 characteristics of human potential were added to the initial list of indicators in the economic block.

Similar analysis was carried out for each of 7 blocks of the human potential characteristics.

At the next stage, after making an extended list of human potential indicators, we were solving the task of estimating the correlation between these indicators within every block. The obtained results make it possible: in the first place, to estimate the extent of linkage between these indicators; in the second—to identify the correlated indicators and to strike off the list the redundant duplicative indicators. Analysis and substantial interpretation of the correlation matrices calculated for each block resulted in the following list including 10 indicators:

- GRP per one employed, thousand rubles per capita;
- rate of the economic activity of population, %;
- rate of innovative activity of organizations, %;
- natural decrease/increase of population;
- life expectancy;
- share of the employed population with secondary and higher education, %;
- average number of spectators per 1000 population, visits to museums per 1000 population, issued newspapers per 1000 population;
- rate of registered crimes;
- rate of drug addicts;
- number of air samples exceeding the ambient standards, as % of the total number of examined samples.

These indicators were examined at the regional level with the purpose to estimate the unevenness of the development of regions in terms of human potential.

The selected list of the human potential indicators, finally including 10 characteristics, presents a sufficiently complete picture of the population quality by regions and allows proceeding to working out management activities with the purpose of equalizing and raising the levels of the human potential development in the subjects of the Federation. However, 83 regions probably have not only differences between them but also similarities. Therefore, it is desirable to group up regions by characteristics of human potential. i.e. to make their typologization, and then to work out general principles and methods of economic management for each group with regard to the obtained typology. Grouping of regions has been already made by different authors using various criteria, and among them the quality

of life. But in the works that we know, quality of population has not yet been used as a qualification attribute in the analysis of regions.

We carried out clustering on the information for 5 years (2008–2012) in two versions: with all 10 indicators of human potential and with 7 social indicators (without economic indicators). Consideration of the second version was due to the doubt that the selected economic indicators may be regarded as the characteristics of human potential. Thus, GRP is formed not only from human resources, but also from fixed capital and natural resources. As to natural resources, we mentioned above the expediency of going over to ecologically-adjusted GRP, i.e. the expediency of subtracting rental income and damage from environmental disturbances from the traditional GRP. In order to neutralize in the same way the impact of fixed capital on GRP, it is necessary to go over from GRP to NRP (net regional product, i.e. GRP less depreciation). The amount and novelty of fixed capital also determine to a large extent the second economic indicator – innovative activity of population. The third economic indicator – the level of the economic activity of population, is now determined to a large extent by migration that, in turn, is conditioned by the scale and branch structure of the economy of regions – the destination points of migration flows, but not by characteristics of human potential.

The cluster analysis was made by hierarchic agglomerative (combining) methods that lead to the construction of a hierarchic structure of the included clusters [12–13]. Here at the first (lower) level, all data are presented as separate clusters, and at the last (upper) level, all data are integrated into one cluster. In particular, we used the method of isolated links (nearest-neighbors method), and the proximity measure was presented by either usual Euclidean distance (in clustering by 10 characteristics) or by Manhattan distance (in clustering by 7 characteristics).

Analysis of the results

As a result of clustering, we received Federal subjects' groupings sufficiently stable over years. A complete package of information was collected for 76 regions, which were investigated in the presented work. Due to lack of some statistical data for certain subjects of the Federation Russia – Nenets Autonomous Okrug, Tyumen region (without autonomous districts), Yamalo-Nenets Autonomous Okrug, Khanty-Mansiysk Autonomous Okrug – Yugra, Sakhalin region, Chukotka Autonomous Okrug, these regions were excluded from consideration. The city of Moscow was not considered as the subject due to its unique position.

The comparison of the obtained grouping of regions by years made it possible to establish stable clusters comprising 63 subjects of the Federal subjects out of 76 subjects under examination, or 83 % (Table 1).

Among the regions migrating from year to year over 3–4 clusters are: Smolensk region, Tver region, the city of Sankt-Petersburg, Novgorod region, Pskov region, Astrakhan region, Republic of Mordovia, Chuvashi Republic, Kurgan region, Sverdlovsk region, Chelyabinsk region, Republic of Altai, Krasnoyarsk territory. Beside this specific, conspicuous is the fact that 3 regions in the Urals Federal District are demonstrating a lack of integration in all years – they have not got even once into the same cluster. But whereas the Sverdlovsk and Chelyabinsk regions sometimes got into the same group, Kurgan region was always detached from them.

Table 2 characterizes cluster centers on the data for 2012, and as to other years, the picture is about the same. For each indicator, we accentuated cells with the best cluster centers. The clusters differ mostly in the levels of economic activity, ecological behavior, innovative activity and life expectancy. Substantial differences between the clusters were found in the indicators of population natural increase and rate of crime. Moreover, conversely, the least differences between the clusters were found in the indicators of cultural development, GRP per one employed, the share of drug addicts and share of the employed with higher and secondary special education.

Let us characterize the contents of each of the stable types of regions established by indicators of human potential.

Cluster 1 includes 14 regions of the European part of Russia and 3 regions of the Far East. The regions coming into this cluster have significantly higher values of the indicators of labor productivity, the level of cultural development, the ecological behavior of population than the average. This cluster ranks first by the share of people with higher and secondary special education. All other indicators are at the average level.

Table 1

Stable groupings of regions based on clustering by 10 characteristics of human potential

Cluster №	Number of regions	Composition of clusters
1	16	Belgorod region, Kaluga region, Lipetsk region, Moscow region, Republic of Komi, Vologda region, Kaliningrad region, Leningrad region, Murmansk region, Republic of Bashkortostan, Republic of Tatarstan, Udmurtian Republic, Nizhni Novgorod region, Orenburg region, Republic of Sakha (Yakutia), Kamchatka territory
2	10	Bryansk region, Vladimir region, Ivanovo region, Kostroma region, Oryol region, Yaroslavl region, Republic of Karelia, Arkhangelsk region (except Nenets AD), Republic of Marij El, Kirov region
3	16	Voronezh region, Kursk region, Ryazan region, Tambov region, Tula region, Republic of Adygeya, Republic of Kalmykia, Krasnodar territory, Volgograd region, Rostov region, Kabardino-Balkarian Republic, Karachaevo-Cherchessian Republic, Republic of North Ossetia — Alania, Stavropol territory, Penza region, Saratov region
4	12	Perm territory, Samara region, Ulyanovsk region, Altai territory, Irkutsk region, Kemerovo region, Novosibirsk region, Omsk region, Tomsk region, Primorsky territory, Khabarovsk territory, Amur region
5	3	Republic of Dagestan, Republic of Ingushetia, Chechen Republic
6	5	Republic of Buryatia, Republic of Tuva, Republic of Khakasia, Zabaikalsk territory, Jewish Autonomous Okrug
7	1	Magadan region

Table 2

Centers of the clusters obtained by 10 indicators of human potential on the data for 2012

Indicator	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7
GRP per one employed	470.60	279.68	285.58	376.93	263.45	290.65	523.79
Level of economic activity	70.20	68.52	65.16	66.44	67.80	61.60	79.10
Innovative activity	12.31	9.31	8.08	8.59	8.80	5.61	24.80
Natural increase of population	-0.02	-4.28	-1.23	-0.14	17.27	7.90	-0.10
Life expectancy	69.41	68.86	71.24	68.14	74.86	64.71	66.15
Higher + secondary special education	50.20	49.12	45.38	46.71	36.07	47.47	41.10
Cultural level	302.12	315.75	242.51	303.14	288.90	248.06	279.85
Crime	1595.31	1595.46	1105.13	2108.00	390.67	2392.67	2108.00
Drug addiction	176.98	111.01	168.86	336.76	140.17	126.43	133.20
Share of water samples exceeding the ambient standards	1.12	1.12	1.24	1.83	3.90	8.37	14.20

Cluster 2 comprises 10 regions of the European part of Russia. The highest indicators are: the level of cultural development, the rate of drug addiction and ecological behavior of population. The level of education is above the average. The indicator of life expectancy has the average value. The regions are characterized by values below the average in labor productivity, the level of economic activity, innovative activity, crime. The cluster is the last in natural increase of population.

Cluster 3 embraces 11 regions in the North-Caucasian and the South Federal Districts, and 5 adjacent regions in the Central Federal District. These regions are above the average in life expectancy, the share of people with higher and secondary special education, the ecological behavior of population. They have low rates of crime and drug addiction. They are below the average in labor productivity, economic activity of population, innovative activity, natural increase of population, and rank last in the level of cultural development.

Cluster 4 is composed of 3 regions of the Privolzhsky Federal District and 9 subjects of the Russian Federation in Siberia and Far East. This type of regions is notable for indicator values above the

average in such characteristics of population as the share of people with higher and secondary special education, level of cultural development, ecological behavior.

Cluster 5 is presented by 3 republics of the North Caucasus characterized first of all by particular traditions in upbringing and behavior of people. These regions rank first by such indicators as the population natural increase and life expectancy, and have the lowest rates of crime. At the same time, the labor abilities of population are characterized by the lowest values of labor productivity and the share of people with higher and secondary professional education. Above the average is the indicator of ecological behavior, below the average – innovative activity.

Cluster 6 incorporates less-developed regions of the Eastern Siberia with the smallest share of economically active population. In this cluster, there are also the worst values of the indicators of innovative activity, life expectancy, crime. This cluster has also low indicators of labor productivity, the level of cultural development, ecological behavior. It differs positively from most other clusters only in population natural increase and incidence of drug addiction.

Cluster 7 is presented by only one region – Magadan region with the population characterized by high levels of economic activity, innovative activity and labor productivity. There are low values of population natural increase, life expectancy, education level, drug addiction. The region occupies the last place by indicators of crime and ecological behavior. The indicator of cultural development is there at the average level. It should be noted that Cluster 7 having the highest GRP per one employed shows the highest share of air samples exceeding the ambient standards. So it should seem that this goes against our desire to reflect in the ecological indicator just the attitude of population to the environment, but not the technological impact of industry on the environment. But if we look at other clusters, we shall see that there is actually no connection between these two indicators. For example, Cluster 6 is characterized by the lowest level of economic development and, at the same time, by last but one place in the state of the environment.

Thus, Cluster 1 can be regarded as the most successful in terms of population quality. Many of its regions are advanced in the socio-economic development, and among them: Moscow, Leningrad, Belgorod, Kaluga regions, Republics of Bashkortostan and Tatarstan.

Then follows Cluster 2, being inferior in labor productivity, but superior in cultural development and struggle against drugs.

The third place in terms of population quality belongs to Cluster 5. Its low labor productivity reflects rather its economic development than the quality of population. As to the social indicators of population quality, this cluster differs from other clusters by a high life expectancy, the natural increase of population, as well as the low rate of crime.

The Magadan region, being the only representative of Cluster 7, is distinguished by its economic indicators, but the social indicators are not high. By social indicators this region is close to the regions of Cluster 6 that is behind all other clusters by the complete collection of human potential characteristics. Next to the last places in the classification under consideration can be given to Clusters 3 and 4. In most cases the subjects in Cluster 3 embrace agrarian regions of the southern territories in the European part of the country, and in Cluster 4 – Siberian and Far Eastern regions. The main difference between these clusters is in life expectancy that is much higher in Cluster 3.

Finally, we can conclude that the obtained typology of regions by the economic and social characteristics of population quality can be substantially interpreted and taken as a basis when designing the strategies for development of human potential, common for all clusters. We can also note the strong impact of the factor of geographical location on the differentiation of regions by population quality. Concurrent with this, one should pay attention to the differences between regions within a Federal district by the level of human potential development. For example, the regions of the Central Federal District divided into 3 groups and got into the first three clusters marked by significant differences. The significance of the differences between separate regions of this district (but not clusters to which they belong) with respect to human potential is the subject of a special analysis that can be made following the results of the performed estimations.

And probably the main thing: in view of the substantial differentiation of regions by the chosen indicators, investigation and development of human potential should become one of the major aims of regional policy.

Typology of regions by 7 characteristics of human potential

Federal districts	Composition of clusters				
	1 (18 Federal subjects)	2 (25 Federal subjects)	3 (13 Federal subjects)	4 (3 Federal subjects)	5 (4 Federal subjects)
Central	Belgorod region Voronezh region Kostroma region Kursk region Lipetsk region Moscow region Ryazan region Tambov region Tula region	Bryansk region Vladimir region Ivanovo region Oryol region Tver region Yaroslavl region	Astrakhan region		
North West	Leningrad region	Republic of Karelia Republic of Komi Arkhangelsk region (except Nenets AD) Vologda region Murmansk region Novgorod region Pskov region			
South	Republic of Adygeya Republic of Kalmykia Krasnodar territory Volgograd region				
Urals			Kurgan region Sverdlovsk region Chelyabinsk region		
North-Caucasian	Stavropol territory			Republic of Dagestan Republic of Ingushetia Chechen Republic	
Siberian		Republic of Altai	Republic of Khakasia Krasnoyarsk territory Irkutsk region Kemerovo region Novosibirsk region Tomsk region		Republic of Buryatia Zabaikalsk territory
Privolzhsky	Republic of Mordovia Penza region Saratov region	Republic of Bashkortostan Republic of Marij El Republic of Tatarstan Udmurtian Republic Chuvashi Republic Kirov region Nizhni Novgorod region Orenburg region Ulyanovsk region	Perm territory Samara region		
Far East		Republic of Sakha (Yakutia) Kamchatka territory	Primorsky territory		Magadan region Jewish Autonomous Okrug

We expressed above doubt that the examined economic indicators are characterizing particularly the labor ability of population. These indicators are also being formed under the impact of other factors, and first of all the investment, fixed capital, natural resources.

To eliminate the effect of these factors, we carried out a cluster analysis by 7 social criteria of population quality. The investigation was conducted by the same 76 Federal subjects and based on the data for 2008–2012. We received a grouping of regions by 7 clusters with different impletion for each year. Thereby, only 5 clusters combining 63 Federal subjects turned out to be stable. The fact that the typology made by 10 indicators also demonstrates stable groupings presented by 63 regions is an unconditional coincidence. Besides, the structures of these 63 regions by 10 and 7 indicators are different.

The obtained typology of regions by 7 indicators characterizing human potential is presented in Table 3. In each cluster, the regions entering into the same Federal District are separated by blank lines.

Comparison of this version of the regions' typology by 7 indicators of human potential with that by 10 indicators shows that without economic indicators the impletion of clusters is more unequal. Thus, Cluster 2 comprises 25 regions, and Cluster 1 — 18, while in the calculation by 10 indicators the most numerous cluster includes only 16 Federal subjects.

Many regions that in the first version do not get into the stable groups of regions, in this case have positions stable over years. In particular, while in the typology by 10 indicators there is not any region from the Urals Federal District, in the typology by 7 indicators they are presented, and moreover, they are all in the same cluster. This points to the fact that the regions show similarity by social indicators of population quality, but differ in the level of economic development.

In the second typology, the regions within every Federal district are less scattered over different clusters than in the typology by 10 indicators. For example, regions of the Central Federal District come into 2 but not 3 clusters; regions of the Privolzhsky Federal District — in 3 instead of 4 clusters, and most of them — 9 Federal subjects are in Cluster 2; the whole North West Federal District (except the Leningrad region) falls into Cluster 2.

Only one cluster consisting of Republic of Dagestan, Republic of Ingushetia, Chechen Republic shows constancy. In both typologies — by 10 and by 7 indicators — they hold a unique position.

Table 4

Centers of the clusters obtained by 7 social characteristics of human potential on the data for 2011

Indicator	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Natural increase of population	–2.67	–2.06	–0.11	19.87	1.70
Life expectancy	70.57	68.57	68.12	74.23	66.84
Higher + secondary special education	27.83	24.58	26.24	24.12	23.76
Cultural level	241.06	327.17	296.77	289.25	259.35
Crime	1171.50	1767.75	2198.30	405.67	2440.00
Drug addiction	160.59	152.98	339.12	140.57	102.37
Share of water samples exceeding the ambient standards	1.40	1.24	2.67	7.75	19.95

Cluster 4 has no equals in the indicator of population natural increase, while Clusters 1 and 2 are the most disadvantaged in this respect. This is alarming, for the first 2 clusters comprise 43 Federal subjects with the population of 66.5 million people, and the successful Cluster 4 includes 3 Federal subjects with small-numbered population of 4.66 million people.

Cluster 4 also leads in life expectancy, followed far behind by Clusters 1, 3 and 2 in succession. The worst situation is in Cluster 5 presented by Republic of Buryatia, Zabaikalsk territory, Magadan region and Jewish Autonomous Okrug.

As to the share of the employed with higher and secondary special education, the best situation is in Cluster 1, the worst — in Clusters 4 and 5, and it is surprising that Cluster 3 is close to them.

Unexpected results were obtained in the level of cultural development — the worst position is taken by Cluster 1 including Moscow and Leningrad regions, just the subjects distinguished by the high culture of population and a large number of residents. High level of culture is found in Cluster 2.

The indicator of the ecological behavior of population characterized here by the share of samples exceeding the ambient standards in the total number of examines samples, has the best values in Cluster 5, then follow Clusters 4 and 3. And the worst situation is in Clusters 1 and 2.

So, we can identify the most disadvantageous cluster that clearly stands out with the worst values of 4 social indicators out of 7, and namely: life expectancy, the share of the employed with higher and secondary special education, the rate of crime, the ecological behavior of population. That is Cluster 5.

At the same time, it is difficult to choose the cluster with the best quality of population. The best cluster by 3 indicators — natural increase of population, life expectancy and rate of crime, is Cluster 4. This cluster also stands out positively (holds the second place) in the struggle against drug addiction. However, it is among the worst by the share of the employed with higher and secondary special education and by ecological behavior.

Clusters 1 and 2 are close by characteristics of population quality. They both have a low natural increase of population, high rates of drug addiction. They differ greatly only in the level of cultural development: Cluster 2 is the best by this characteristic of human potential, while Cluster 1 is the worst.

Moreover, Cluster 3 holds the intermediate position by most indicators, being lower by the rate of crime.

We have clearly demonstrated the most acute problems in each cluster. It is the solution of these problems that should be the aim of major actions for improvement of the social policy of Federal subjects. What measures can be effective one can find out having examined the strategic directions of regions' development in the most successful cluster with respect to the human potential characteristic under investigation.

Conclusion

Thus, in the presented study, we sequentially went through all stages of the process of typologization of regions in the aspect under consideration. Firstly, we formed a system of the indicators of human potential that initially included 63 indicators in 7 blocks of informative data. Finally, the correlation analysis resulted in the substantiation of the system of indicators consisting of 10 indicators. This system included 3 economic and 7 social indicators characterizing human potential. Secondly, we conducted a cluster analysis that broke down all regions into seven clusters. The investigation was carried out in two versions: with economic indicators and without them. As a result of the analysis of the findings based on the information for 5 years, we constructed a stable typology of Russian regions by human potential indicators. Thirdly, there is given a substantial interpretation of the obtained results.

The systematization of the regions by clusters makes it possible to see their major problems and achievements in terms of population quality. This last stage of the conducted work can be, in turn, considered as the beginning of a new scientific study answering the question about the ways and methods for overcoming regional inequality in the indicators of human potential. It is likely that these methods can be applied to clusters that will significantly diminish and put in order the system of measures the furthering reduction of the regional differentiation in human potential indicators.

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